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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,786	06/06/2006	Harald Jacobsson	3670-66	5506

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EXAMINER	
POOS, JOHN W	

ART UNIT	PAPER NUMBER
2816	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,786	JACOBSSON ET AL.	
	Examiner	Art Unit	
	JOHN W. POOS	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Juan et al. (US 2003/0099321), in view of Das (US 5,679,624).

In regard to Claim 1:

Juan (321) teaches, in Figure 1, input means for an input signal that is to be delayed, said input means (48) comprising means for splitting said input signal into a first and a second branch (48 split to 24 and 56); a component for delaying the signal in the first branch (24); the second branch being configured whereby the signal in the second branch is used as a non-delayed

reference signal for a delay caused by the delay component in the first branch (48 split to 56); tuning means for the tunable delay line (Tune output of 60), said tuning means being affected by said reference signal (Reference clock through 56 and 60); wherein the first branch comprises output means for outputting a delayed signal with a chosen phase delay (52), but fails to teach wherein the delay component comprises a passive tunable delay line comprising an electrical conductor supported by a dielectric material.

Das (624) teaches, in Figure 7, wherein the delay component comprises a passive tunable delay line comprising an electrical conductor (21-23) supported by a dielectric material (6).

It would have been obvious to one skilled in the art at the time of the invention to use a passive tunable delay line comprising an electrical conductor supported by a dielectric material in order to use lower control power and handle high peak power (Das Column 1: lines 63-65).

In regard to Claim 2:

All of the claim limitations have been discussed with respect to Claim 1 above, except for in which the delay component is continuously tunable.

Juan (321) further teaches in which the delay component is continuously tunable (Paragraph 0020: lines 2-7).

In regard to Claim 3:

All of the claim limitations have been discussed with respect to Claim 1 above, except for in which the delay component is a passive component.

Das (624) further teaches in which the delay component is a passive component (Column 2: lines 10-13).

In regard to Claim 4:

All of the claim limitations have been discussed with respect to Claim 1 above, except for in which the delay component is a tunable ferroelectric delay line.

Das (624) further teaches in which the delay component is a tunable ferroelectric delay line (Column 1: lines 62-64).

In regard to Claim 5:

All of the claim limitations have been discussed with respect to Claim 1 above, except for in which the second branch comprises a phase detector, by means of which the non-delayed signal of the second branch is compared to the delayed signal in the first branch at a point in the first branch where the delay to be caused by the delay component is known, the output signal from the phase detector being used as a control signal for the tuning means for the delay component of the first branch.

Juan (321) further teaches, in Figure 1, in which the second branch comprises a phase detector (56), by means of which the non-delayed signal of the second branch (reference clock split from 48 before 24) is compared to the delayed signal in the first branch (52) at a point in the first branch where the delay to be caused by the delay component is known, the output signal from the phase detector being used as a control signal for the tuning means for the delay component of the first branch (tune from low pass filter 60).

In regard to Claim 6:

All of the claim limitations have been discussed with respect to Claim 1 above, except for wherein the delay component comprises a ground plane which supports the dielectric material, and wherein a control signal applies a voltage between the electrical conductor and the ground plane to alter a dielectric constant of the dielectric material.

Das (624) further teaches wherein the delay component comprises a ground plane (5) which supports the dielectric material (6), and wherein a control signal (input to output, see Figure 6 as well for top view) applies a voltage between the electrical conductor (21-23) and the ground plane (5) to alter a dielectric constant of the dielectric material (Column 5: lines 10-12).

In regard to Claim 7:

All of the claim limitations have been discussed with respect to Claim 1 above, except for wherein the delay component comprises plural signal phase take off points, wherein the plural signal phase take off points have differing phase shifts relative to one another, but wherein a phase shift at each take off point remains the same regardless of wavelength of the input signal.

Juan (321) further teaches wherein the delay component comprises plural signal phase take off points (0,1,2…N of 24) , wherein the plural signal phase take off points have differing phase shifts relative to one another, but wherein a phase shift at each take off point remains the same regardless of wavelength of the input signal (Figure 2).

In regard to Claim 8:

Juan (321) teaches, in Figure 1, a splitter (split of reference clock to 24 and 56) configured to split an input signal that is to be delayed into a first branch and a second branch; a component (24) for delaying the signal in the first branch, the second branch (split of 48 to 56) being configured whereby the signal in the second branch is used as a non-delayed reference signal for a delay caused by the delay component in the first branch; a tuner (60 outputs tune signal) configured to tune the delay line in accordance with the reference signal, but does not teach the delay component comprises a passive tunable delay line comprising an electrical

conductor supported by a dielectric material. (the recited function will be inherent in the operation of Juan (321)).

Das (624) teaches, in Figure 7, the delay component comprises a passive tunable delay line comprising an electrical conductor (21-23) supported by a dielectric material (6).

It would have been obvious to one skilled in the art at the time of the invention to use a passive tunable delay line comprising an electrical conductor supported by a dielectric material in order to use lower control power and handle high peak power (Das Column 1: lines 63-65).

In regard to Claim 9:

All of the claim limitations have been discussed with respect to Claim 8 above, except for in which the delay component is continuously tunable.

Juan (321) further teaches in which the delay component is continuously tunable (Paragraph 0020: lines 2-7).

In regard to Claim 10:

All of the claim limitations have been discussed with respect to Claim 8 above, except for in which the delay component is a passive component.

Das (624) further teaches in which the delay component is a passive component (Column 2: lines 10-13).

In regard to Claim 11:

All of the claim limitations have been discussed with respect to Claim 8 above, except for in which the delay component is a tunable ferroelectric delay line.

Das (624) further teaches in which the delay component is a tunable ferroelectric delay line (Column 1: lines 62-64).

In regard to Claim 12:

All of the claim limitations have been discussed with respect to Claim 8 above, except for in which the second branch comprises a phase detector, by means of which the non-delayed signal of the second branch is compared to the delayed signal in the first branch at a point in the first branch where the delay to be caused by the delay component is known, the output signal from the phase detector being used as a control signal for the tuning means for the delay component of the first branch.

Juan (321) further teaches, in Figure 1, in which the second branch comprises a phase detector (56), by means of which the non-delayed signal of the second branch (reference clock split from 48 before 24) is compared to the delayed signal in the first branch (52) at a point in the first branch where the delay to be caused by the delay component is known, the output signal from the phase detector being used as a control signal for the tuning means for the delay component of the first branch (tune from low pass filter 60).

In regard to Claim 13:

All of the claim limitations have been discussed with respect to Claim 8 above, except for wherein the delay component comprises a ground plane which supports the dielectric material, and wherein a control signal applies a voltage between the electrical conductor and the ground plane to alter a dielectric constant of the dielectric material.

Das (624) further teaches wherein the delay component comprises a ground plane (5) which supports the dielectric material (6), and wherein a control signal (input to output, see Figure 6 as well for top view) applies a voltage between the electrical conductor (21-23) and the ground plane (5) to alter a dielectric constant of the dielectric material (Column 5: lines 10-12).

In regard to Claim 14:

All of the claim limitations have been discussed with respect to Claim 8 above, except for wherein the delay component comprises plural signal phase take off points, wherein the plural signal phase take off points have differing phase shifts relative to one another, but wherein a phase shift at each take off point remains the same regardless of wavelength of the input signal.

Juan (321) further teaches wherein the delay component comprises plural signal phase take off points (0,1,2…N of 24) , wherein the plural signal phase take off points have differing phase shifts relative to one another, but wherein a phase shift at each take off point remains the same regardless of wavelength of the input signal (Figure 2).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN W. POOS whose telephone number is (571)270-5077. The examiner can normally be reached on M-F (alternating Fridays off), E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richards, can be reached at 571-272-1736. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth B. Wells/
Primary Examiner
Art Unit 2816

/J. W. P./
Examiner, Art Unit 2816